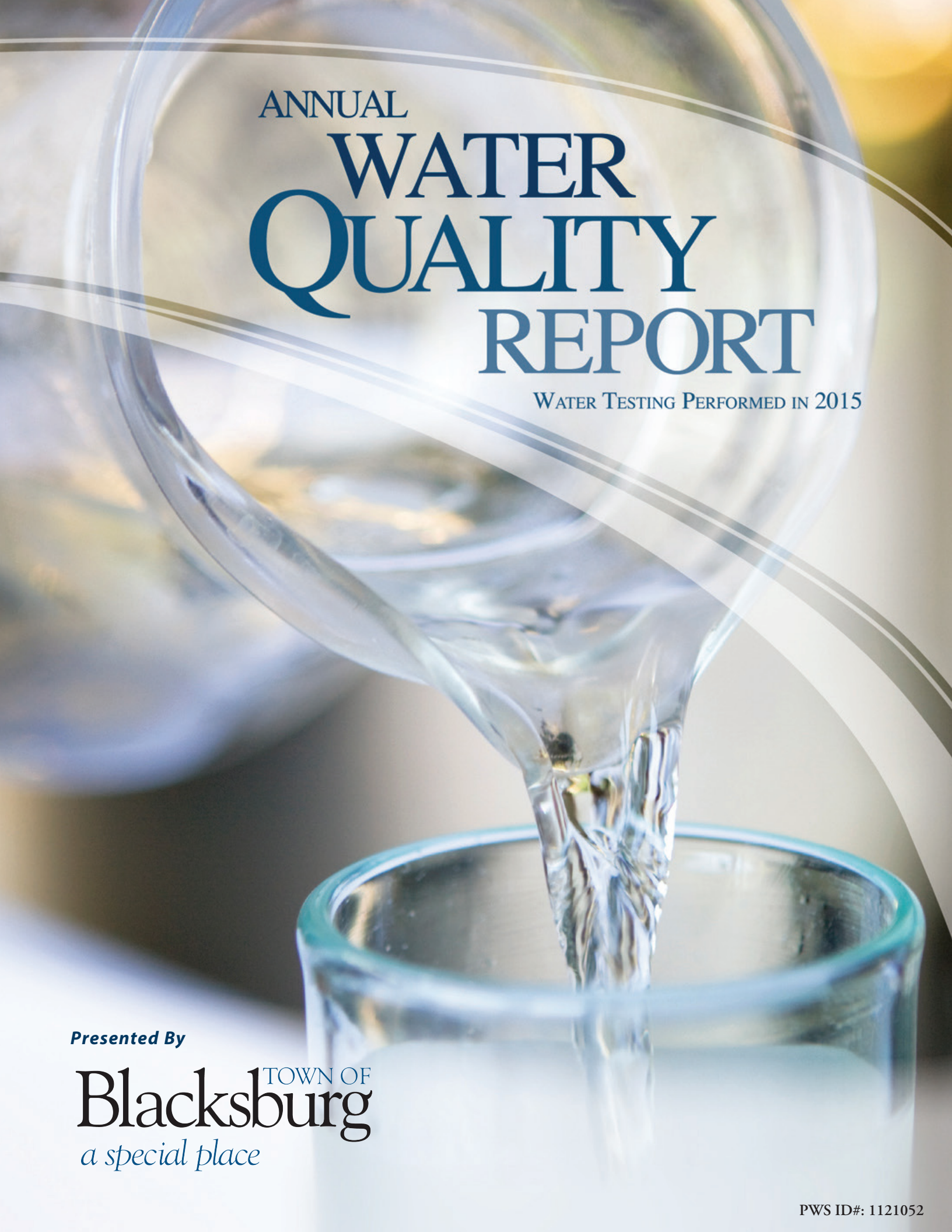


ANNUAL WATER QUALITY REPORT

WATER TESTING PERFORMED IN 2015

Presented By

TOWN OF Blacksburg

a special place

PWS ID#: 1121052

Meeting the Challenge

Once again the Town of Blacksburg is proud to present our annual drinking water quality report, covering all testing performed between January 1 and December 31, 2015. The report highlights that our water system and your tap water meet all Federal and State drinking water health standards for safe drinking water.

Over the years, we have dedicated ourselves to producing drinking water that meets all State and Federal standards. We continually strive to adopt new methods for delivering the best-quality drinking water to your homes and businesses. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all of our water users.

Please remember that we are always available to assist you should you ever have any questions or concerns about your water.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as those with cancer undergoing chemotherapy, those who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or http://water.epa.gov/drink/hotline.

Information on the Internet

The U.S. EPA (www.epa.gov/Your-Drinking-Water) and the Centers for Disease Control and Prevention (www.cdc.gov/healthywater/drinking/) Web sites provide a substantial amount of information on many issues relating to water resources, water conservation, and public health. Also, the Virginia Department of Health, Office of Drinking Water, has a Web site (www.vdh.virginia.gov/ODW) that provides complete and current information on water issues in Virginia, including valuable information about our watershed.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water that must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, in some cases, radioactive material, and substances resulting from the presence of animals or from human activity. Substances that may be present in source water include:

Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;

Pesticides and Herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses;

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and may also come from gas stations, urban stormwater runoff, and septic systems;

Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Public Meetings

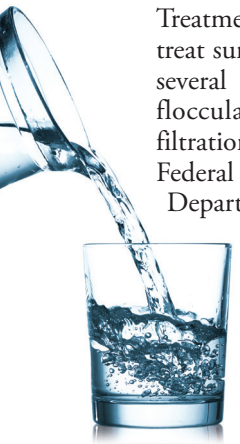
Water Authority meetings are held the third Wednesday of each month at 4:00 p.m. at the University Gateway Center, 902 Prices Fork Road, Room 4000. For more information on your water system, visit www.nrvwater.org.

Source Water Assessment

A source water assessment of the Blacksburg water system was conducted in 2002 by Draper Aden and Associates. The source was determined to be of high susceptibility to contamination using criteria developed by the State of Virginia and its approved Source Water Assessment program. Details of this report may be obtained from the NRV Regional Water Authority.

Where Does My Water Come From?

Blacksburg's water is taken from the New River and pumped to the NRV Regional Water Authority treatment plant located on Route 114. The Water Treatment Facility utilizes a conventional process to treat surface water from the river. Water goes through several treatment processes, including coagulation, flocculation, chlorination, sedimentation, and filtration. The treated water must meet State and Federal requirements administered by the Virginia Department of Health (VDH).



From there, the treated water is transmitted through a series of pipes, tanks, and pump stations located along Routes 114 and 460 to the Town's water storage tanks, and then to your tap. Last year, Blacksburg used an average of 2.49 million gallons of water a day.

Water Main Flushing

Distribution mains (pipes) convey water to homes, businesses, and hydrants in your neighborhood. The water entering distribution mains is of very high quality; however, water quality can deteriorate in areas of the distribution mains over time. Water main flushing is the process of cleaning the interior of water distribution mains by sending a rapid flow of water through the mains.

Flushing maintains water quality in several ways. For example, flushing removes sediments like iron and manganese. Although iron and manganese do not themselves pose health concerns, they can affect the taste, clarity, and color of the water. Additionally, sediments can shield microorganisms from the disinfecting power of chlorine, contributing to the growth of microorganisms within distribution mains. Flushing helps remove stale water and ensures the presence of fresh water with sufficient dissolved oxygen and disinfectant levels, and an acceptable taste and smell.

During flushing operations in your neighborhood, some short-term deterioration of water quality, though uncommon, is possible. You should avoid tap water for household uses at such times. If you do use the tap, allow your cold water to run for a few minutes at full velocity before use, and avoid using hot water, to prevent sediment accumulation in your hot water tank.

Please contact us if you have any questions or if you would like more information on our water main flushing schedule.

Benefits of Chlorination

Disinfection, a chemical process used to control disease-causing microorganisms by killing or inactivating them, is unquestionably the most important step in drinking water treatment. By far the most common method of disinfection in North America is chlorination.

Before communities began routinely treating drinking water with chlorine (starting with Chicago and Jersey City in 1908), cholera, typhoid fever, dysentery, and hepatitis A killed thousands of U.S. residents annually. Drinking water chlorination and filtration have helped to virtually eliminate these diseases in the U.S. Significant strides in public health are directly linked to the adoption of drinking water chlorination. In fact, the filtration of drinking water plus the use of chlorine is probably the most significant public health advancement in human history.

How chlorination works:

Potent Germicide Reduction in the level of many disease-causing microorganisms in drinking water to almost immeasurable levels.

Taste and Odor Reduction of many disagreeable tastes and odors like foul-smelling algae secretions, sulfides, and odors from decaying vegetation.

Biological Growth Elimination of slime bacteria, molds, and algae that commonly grow in water supply reservoirs, on the walls of water mains, and in storage tanks.

Chemical Removal of hydrogen sulfide (which has a rotten egg odor), ammonia, and other nitrogenous compounds that have unpleasant tastes and hinder disinfection. It also helps to remove iron and manganese from raw water.

QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please call Lori Lester, Water Resources Manager, at (540) 961-4667, or Caleb Taylor, Director, NRV Regional Water Authority, at (540) 639-2575.

Backflow Prevention Solutions for Commercial, Industry, and Research Facilities

For us to understand what backflow prevention is; we must first look at the definition of a cross-connection in the drinking water system. The AWWA (American Water Works Association) defines a cross-connection as "an actual or potential connection between any part of a potable water system and any other environment that contains substances that, under any circumstances, would allow such substances to enter the potable water system". This broad definition includes substances such as chemicals, liquids, gasses, or any matter that can contaminate drinking water. Cross connections can exist in any plumbing system. Understanding the need for cross connection control is vital to safe drinking water. Backflow is the reversal flow of substances into the drinking water system. The two types of backflow are backpressure and backsiphonage. Backpressure occurs when the pressure on the consumer side exceeds the pressure on the water supply side resulting in backflow. Backsiphonage is when the supply pressure falls below atmospheric pressure creating a vacuum into the drinking water system. The Town of Blacksburg has an effective cross connection control program to identify cross connections and either eliminate or isolate them with backflow prevention devices.

These terms are important to understand as the drinking water system grows with economic development, industry, and new research and technology facilities. As new facilities and commercial buildings are built; new plumbing is added to our drinking water system. It is prudent to understand the potential hazards of backflow. Some industrial and research facilities use a great deal of water. They may also use chemicals in their processes and labs. Water pumps, cooling towers, air scrubbers, boilers or other types of process equipment create a high hazard when connected to a building's plumbing system. Some other high hazard uses include restaurants, medical treatment facilities, hospitals, dialysis centers, dentist offices, and craft breweries. There are also medium and low hazard uses such as sprinkler systems and retail stores.

The potential for a backflow event is multiplied by the reality of supply pressure loss. Loss of water supply pressure can be created by fire trucks, hydrant flushing, water line interruptions, leaks, and water main breaks. We must strive to protect against backpressure and backsiphonage by installing backflow prevention devices where these actual or potential cross-connections exist. A backflow prevention device is an in line plumbing apparatus that, when regularly maintained and tested, prevents the backflow of contaminates into the drinking water supply. Commercial uses require at least one type of backflow device which is determined by the actual or potential hazard.

It is a joint responsibility between commercial customers and the Town of Blacksburg to prevent contamination of our drinking water supply. The commercial customer's responsibilities are proper installation, annual testing and maintenance of approved backflow devices. The Towns' responsibilities include conducting hazard surveys, making sure all backflow devices are tested annually, and maintaining backflow test reports. If you have questions about installing and maintaining approved backflow prevention devices or any other cross-connection information please call James Higgins, Water Resources Inspector for the Town of Blacksburg at 540-808-9638 or email jhiggins@blacksburg.gov.

Naturally Occurring Bacteria

The simple fact is, bacteria and other microorganisms inhabit our world. They can be found all around us: in our food, on our skin, in our bodies, and in the air, soil, and water. Some are harmful to us and some are not. Coliform bacteria are common in the environment and are generally not harmful themselves. The presence of this bacterial form in drinking water is a concern because it indicates that the water may be contaminated with other organisms that can cause disease. Throughout the year, we tested many water samples for coliform bacteria. In that time, none of the samples came back positive for the bacteria.

Federal regulations now require that public water that tests positive for coliform bacteria must be further analyzed for fecal coliform bacteria. Fecal coliform are present only in human and animal waste. Because these bacteria can cause illness, it is unacceptable for fecal coliform to be present in water at any concentration. Our tests indicate no fecal coliform is present in our water.

Lead in Home Plumbing

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. We are responsible for providing high-quality drinking water, but we cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at www.epa.gov/lead.

Sampling Results

During the past year, the NRV Regional Water Authority and the Town of Blacksburg have taken thousands of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. The tables below show only those contaminants that were detected in the water.

The State requires us to monitor for certain substances less often than once per year because concentrations of these substances do not change frequently. In these cases, the most recent sample data is included, along with the year in which the sample was taken.

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Barium (ppm)	2015	2	2	0.022	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2015	[4]	[4]	2.34	0.98–3.51	No	Water additive used to control microbes
Fluoride (ppm)	2015	4	4	0.60	NA	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAAs] (ppb)	2015	60	NA	40	18–56	No	By-product of drinking water disinfection
Nitrate (ppm)	2015	10	10	0.37	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes] (ppb)	2015	80	NA	36	17–46	No	By-product of drinking water disinfection
Total Organic Carbon (removal ratio)	2015	TT (In compliance if > or = 1.0)	NA	1.0	1.0–1.0	No	Naturally present in the environment
Turbidity[1] (NTU)	2015	TT, 1 NTU max	NA	0.09	0.02–0.09	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2015	TT, < or = 0.3 NTU (95% of the time)	NA	100%	NA	No	Soil runoff

Tap water samples were collected for lead and copper analyses from sample sites throughout the community.

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/ TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2014	1.3	1.3	0.0764	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits

[1] Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system.

Definitions

AL (Action Level): The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.

LRAA (Locational Running Annual Average): The average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters. Amount Detected values for TTHMs and HAAs are reported as LRAAs.

MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MCLG (Maximum Contaminant Level Goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MRDL (Maximum Residual Disinfectant Level): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG (Maximum Residual Disinfectant Level Goal): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

NA: Not applicable

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

removal ratio: A ratio between the percentage of a substance actually removed to the percentage of the substance required to be removed.

TT (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.